West Virginia Public Finance Program
Special Report

The Economic Incidence of West Virginia Taxes*

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> "It is all well and good to argue that a problem such as this is so complex as to be beyond solution. Yet the legislator, in his search for a better tax structure and more adequate revenue, must consider who actually pays the various taxes; it is thus most desirable that his decisions be based on the best estimate that can be made even though it may only be an educated guess."
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> From *Who Pays the Michigan Taxes?* By Richard A. Musgrave and Darwin W. Daicoff (1958)

Introduction

"Who pays the taxes?" is one of the fundamental questions of taxation and is of significant concern to taxpayers and economists alike. When economists analyze who really pays or bears a tax burden, they talk about the economic incidence of a tax. Economists distinguish between "statutory" and "economic" tax incidence. The statutory incidence of a tax is on the taxpayer that is legally liable for paying that tax, while the economic incidence of a tax is on the people who ultimately bear the burden of that tax. For example, although businesses are legally liable for paying taxes, they can often pass their tax burden onto consumers and workers by way of higher prices and/or lower wages.

This report presents a static analysis of tax incidence for a majority of West Virginia taxes collected between 1999 and 2004. The fourteen state and local taxes considered in this report include personal income, sales, property, severance, business, and other taxes that amount to about 90% of total state tax revenue.[1] First, an overview of the state tax burdens and their changes over time is presented, which is then followed by tax incidence analyses of specific taxes. The assumptions and methodology used to estimate tax incidence is discussed at the end of the report.

Who Really Pays the Taxes?

The fourteen taxes considered in this report amount to about 90% of the revenue collected by the State from 1999 to 2004. Thus, the tax incidence analysis of these fourteen taxes should be representative of the overall West Virginia tax system. A casual analysis of tax liabilities indicates that individuals or households with incomes $50,000 and over paid collectively about 51% of the state and local taxes considered in this report, while those with incomes below $50,000 paid about 49% of the taxes during 1999-2004. Meanwhile, individuals in the lowest income category (less than $10,000) paid collectively about 8% and individuals in the highest income category ($500,000 and over) paid about 3% of the taxes. However, these percentages of taxes paid can be

[1] The fourteen taxes considered in this report are: (1) Corporate Net Income, (2) Business Franchise, (3) Severance, (4) Business and Occupation, (5) Telecommunications, (6) Insurance Premium, (7) Consumer Sales and (8) Use, (9) Personal Income, (10) Beer Barrel and Licenses, (11) Motor Fuel, (12) Tobacco Products, and (13) Real Estate Property Taxes as well as (14) Vehicle License and Registration Fees.

misleading in showing the true tax burden due to a higher total number of people in the lower income groups. A more accurate understanding of who actually pays West Virginia taxes can be obtained by looking at the average tax rates for each of these income groups. The average tax rate, or "economic tax incidence" in this report, is defined as state and local taxes actually paid as a share of federal adjusted gross income for an average West Virginia taxpayer for a given income group in a given year.[2]

Table 1 shows the average tax rates (ratio of tax to income) for specific types of state and local taxes analyzed, as well as their overall tax incidence. The average tax rates shown in Figure 1 indicate that West Virginia taxes, as a whole, are moderately regressive.

Table 1: Economic Incidence of Major West Virginia Taxes, 1999-2004

Income Groups ($)	**0-10,000**	**10,000-20,000**	**20,000-30,000**	**30,000-50,000**	**50,000-75,000**
Personal Income Tax	0.31%	1.88%	2.63%	3.35%	4.16%
Consumer Sales & Use Taxes	12.44%	5.70%	4.59%	3.61%	2.98%
Beer Barrel & Licenses Taxes	0.12%	0.04%	0.04%	0.03%	0.03%
Cigarette & Tobacco Taxes	0.99%	0.46%	0.32%	0.24%	0.15%
Telecommunications Tax	0.20%	0.09%	0.07%	0.05%	0.04%
Real Estate Property Tax*	4.23%	2.33%	1.78%	1.41%	1.29%
Motor Vehicle License & Registration Fees	1.02%	0.55%	0.45%	0.37%	0.30%
Motor Fuel Tax	3.37%	1.67%	1.43%	1.21%	0.99%
CNIT/BFT, Severance, and B&O Taxes**	5.79%	2.93%	2.22%	1.71%	1.42%
Insurance Tax	1.09%	0.72%	0.56%	0.43%	0.34%
Overall Tax Incidence	**29.55%**	**16.37%**	**14.10%**	**12.41%**	**11.70%**
Income Groups ($)	**75,000-100,000**	**100,000-150,000**	**150,000-200,000**	**200,000-500,000**	**500,000 and up**
Personal Income Tax	4.77%	5.19%	5.52%	5.83%	5.94%
Consumer Sales & Use Taxes	2.78%	2.47%	1.98%	1.49%	0.67%
Beer Barrel & Licenses Taxes	0.03%	0.03%	0.02%	0.02%	0.01%
Cigarette & Tobacco Taxes	0.10%	0.06%	0.03%	0.02%	0.01%
Telecommunications Tax	0.04%	0.03%	0.02%	0.01%	0.00%
Real Estate Property Tax*	1.44%	1.98%	2.72%	3.11%	4.05%
Motor Vehicle License & Registration Fees	0.26%	0.19%	0.13%	0.07%	0.02%
Motor Fuel Tax	0.86%	0.68%	0.47%	0.24%	0.07%
CNIT/BFT, Severance, and B&O Taxes**	1.38%	1.46%	1.56%	1.62%	1.59%
Insurance Tax	0.29%	0.26%	0.23%	0.13%	0.03%
Overall Tax Incidence	**11.96%**	**12.34%**	**12.67%**	**12.55%**	**12.38%**

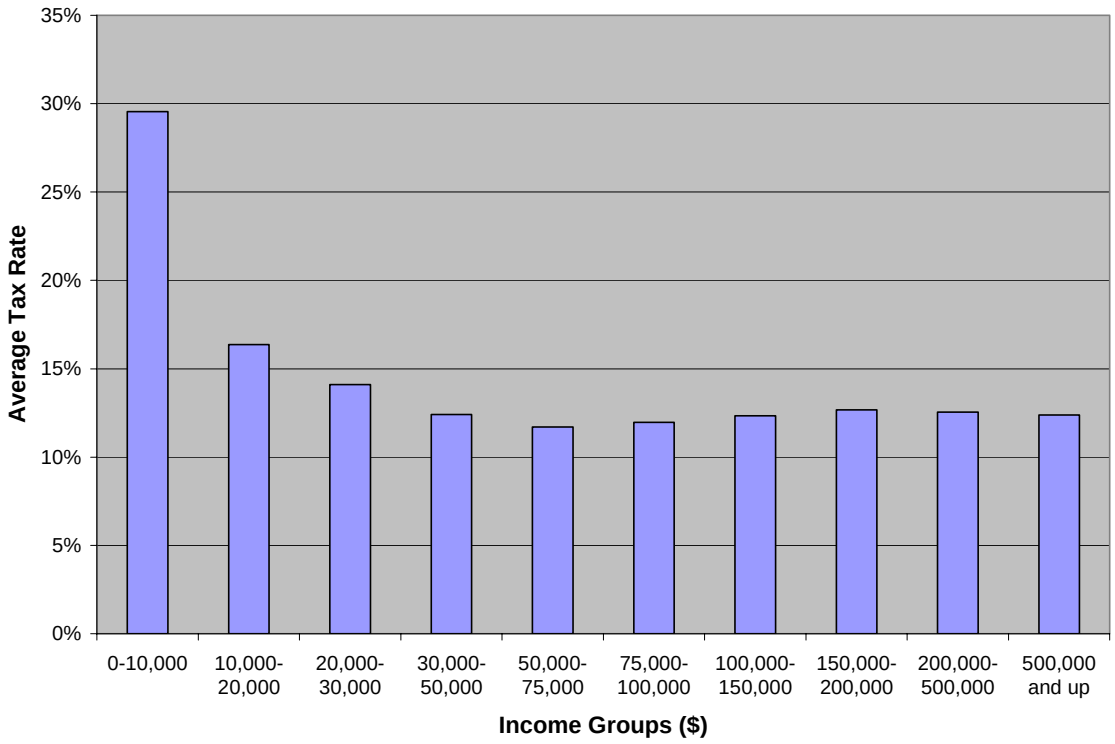
* We assume that the tax on commercial property is borne by capital owners (capital tax view) and the tax on residential property is borne by households according to their housing expenditures (traditional tax view). ** Here, we assume that 50% of the CNIT/BFT burden is borne by capital owners and the other

[2] For the average tax rate calculation we used the ten income groups or brackets listed in the Statistics of Income (SOI) publication provided by the IRS.

50% by consumers. Also, 50% of the Severance and B&O tax burden is assumed to be exported to consumers outside of West Virginia through higher prices.

A tax is progressive if the average tax rate (ratio of tax to income) increases as income increases. In other words, consumers in the bottom income group ($10,000 and below) pay three times more in taxes as a share of their income compared to those in the top income group ($500,000 and above). Similarly, the average rate for the second lowest income group (with incomes between $10,000 and $20,000) is more than one and a half times greater than the rate for the highest income group. Furthermore, the overall average tax rate in Figure 1 decreases as we move from the bottom to the top income group, which shows the regressive nature of the West Virginia taxes. The overall regressivity of the fourteen West Virginia taxes is largely due to numerous commodity taxes that are somewhat counterbalanced by the progressivity of the state personal income tax.

Figure 1: Overall Economic Incidence of Major West Virginia Taxes, 1999-2004



Note: The overall tax incidence rate in the figure above is the sum of the fourteen taxes considered in this report. These taxes are: Corporate Net Income/Business Franchise, Severance, Business and Occupation, Telecommunications, Insurance, Sales and Use, Personal Income, Beer, Wine, and Liquor, Motor Fuel, Tobacco Products, and Real Estate Property Taxes as well as Vehicle License and Registration Fees.

Changes in Economic Tax Incidence over Time

A dynamic comparison of the tax incidence rates reveals that West Virginia tax system, as a whole, has become more regressive from 1999 to 2004 as shown in Table 2.[3] According to Table 2, all fourteen taxes considered in this report became more regressive since 1999. The increased tax regressivity can be attributed to higher inflation rates that have outpaced state personal income or state GDP growth. Consumer price index (CPI) that measures inflation grew on average at 2.5% between 1999 and 2004, while West Virginia's real GDP and real personal income grew annually at 1.37% and 1.04%, respectively. Fueled by the national real estate market boom, the real property tax revenue in West Virginia also outpaced personal income by growing at 5%, on average, between 1999 and 2004. Rising energy costs tend to increase the prices of consumer products as well as business inputs and translate into higher average tax rates for lower income groups compared to higher income groups. Higher prices usually lead to higher tax revenues and higher tax rates if income growth does not keep up with inflation. A rather mild decrease in progressivity of the state income tax system can be attributed to the growth in state personal income that has pushed many lower income individuals into higher state income tax brackets resulting in higher average tax burdens (also known as "bracket creep") for lower income earners.

Table 2: Major West Virginia Taxes Become More Regressive during 1999-2004

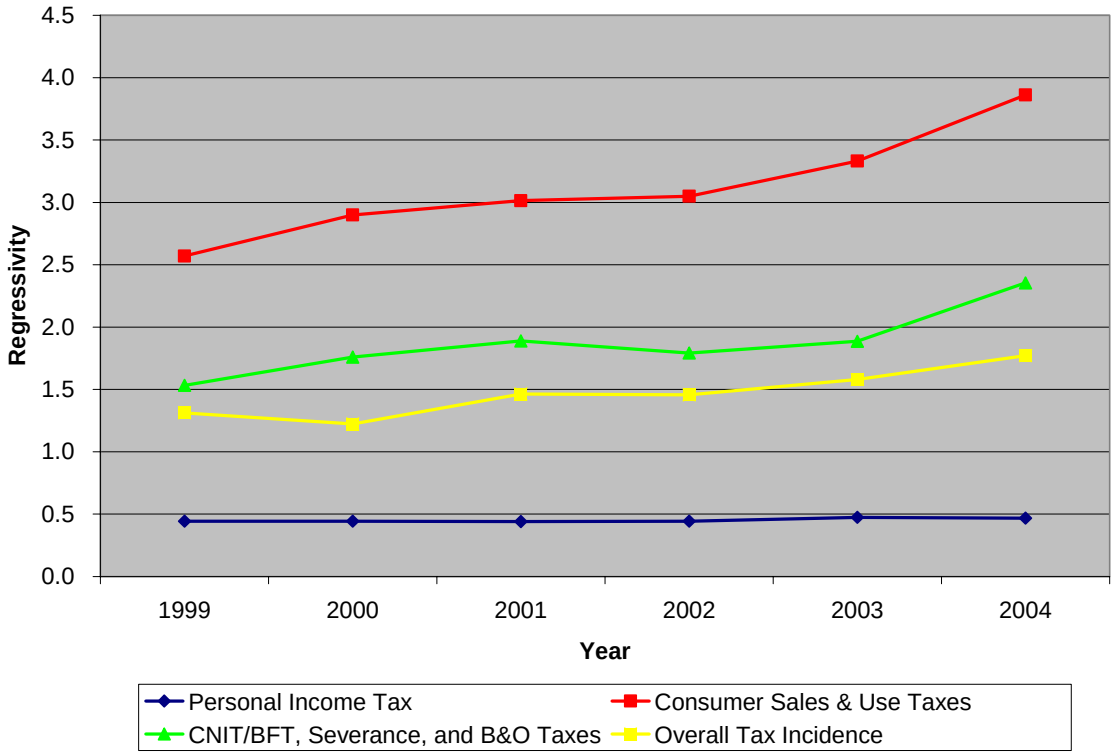
Year	1999	2000	2001	2002	2003	2004
Personal Income Tax	0.44	0.44	0.44	0.44	0.47	0.47
Consumer Sales & Use Taxes	2.57	2.90	3.01	3.05	3.33	3.86
Beer Barrel & Licenses Taxes	2.14	2.42	2.51	2.53	2.77	3.21
Cigarette & Tobacco Taxes	7.59	8.63	9.15	9.39	10.25	11.78
Telecommunications Tax	3.56	4.04	4.23	4.31	4.71	5.43
Real Estate Property Tax	0.70	0.76	0.81	0.80	0.87	1.05
Motor Vehicle License & Registration Fees	3.28	3.71	3.88	3.97	4.34	4.98
Motor Fuel Tax	3.05	3.45	3.61	3.69	4.04	4.64
CNIT/BFT, Severance, and B&O Taxes	1.53	1.76	1.89	1.79	1.89	2.35
Insurance Tax	2.70	3.04	3.16	3.22	3.53	4.06
Overall Tax Incidence	**1.20**	**1.14**	**1.35**	**1.33**	**1.46**	**1.67**

Note: The regressivity measure is computed by dividing the average tax rate for the bottom five income groups by the average tax rate for the top five income groups. The larger is the regressivity number the higher is tax burden borne by the bottom five income groups relative to the top five income groups. If this regressivity measure is greater than one for a given tax, it means that the tax is regressive, overall. Conversely, the regressivity measure of less than one for a given tax implies that it is progressive, overall.

Out of the fourteen taxes considered in the report, the largest increases in regressivity occurred to the business, tobacco, telecommunication, and motor fuel taxes followed closely by the sales, property, insurance, and alcohol taxes. Figure 2 shows changes in regressivity for some of these taxes from 1999 to 2004.

[3] The regressivity measure used here is computed by dividing the average tax rate for the bottom five income groups by the average tax rate for the top five income groups. The larger is the regressivity number the higher is tax burden borne by the bottom five income groups relative to the top five income groups. If this regressivity measure is greater than one for a given tax, it means that the tax is regressive. Conversely, the regressivity measure of less than one for a given tax implies that it is progressive.

Figure 2: Regressivity of Selected West Virginia Taxes Increased during 1999-2004



Note: Regressivity measure is computed by dividing the average tax rate for the bottom five income groups by the average tax rate for the top five income groups. The higher is the regressivity number the higher is tax burden borne by the bottom five income groups relative to the top five income groups.

There could also be a number of specific factors responsible for increasing the regressivity of particular taxes. For example, the Cigarette Excise Tax rate went up from 17 cents per pack to 55 cents per pack on May 1, 2003, according to West Virginia's State Tax Department. Unlike other taxes, the Telecommunications, CNIT/BFT, B&O, and Severance taxes did not experience consistent increases in regressivity from year to year. The rises and drops in the regressivity of business taxes could be the result of business cycle fluctuations in capital gains among West Virginia's higher income earners, which fluctuated dramatically between 1999 and 2004 according to the IRS' Statistics of Income figures. Namely, total net capital gains for West Virginia resident taxpayers went from $973 million in 1999 and $1,071 million in 2000 to $565 million in 2001, $449 million in 2002, and $503 million in 2003 before increasing to $749 million in 2004. It appears that CNIT/BFT, B&O, and Severance taxes became less regressive as state capital gain realizations rose and more regressive as capital gains fell.

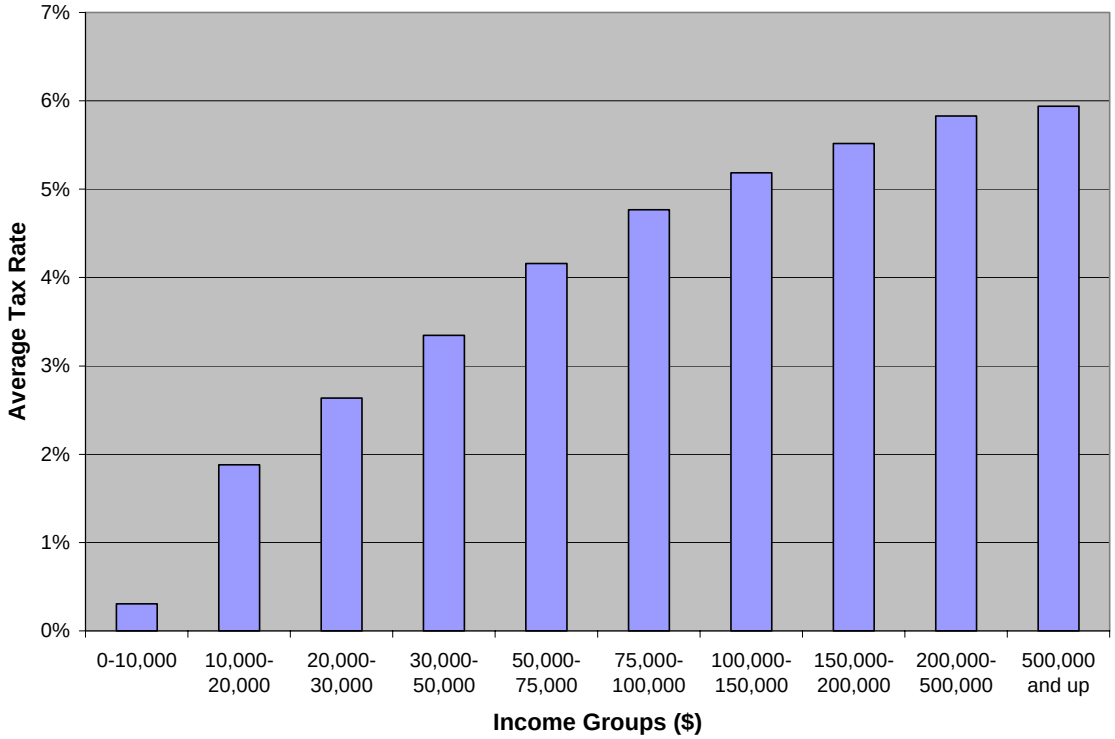
In 2006, Governor Joe Manchin and state legislators enacted some of the recommendations of the West Virginia Tax Modernization Project making the overall West Virginia tax system less regressive. These tax changes include an indexed family tax credit that eliminated the Personal Income Tax on families with incomes below the federal poverty level, expended tax credit for senior citizens on the first $20,000 paid in property taxes, eventual reduction in the Consumer Sales and Service Tax on food from 6 to 3 percent, and reduction in the state Corporate Net Income Tax (from 9 to 8.75

percent) and Business Franchise Tax (from 0.7 to 0.55 percent). In a separate legislative session in 2007, West Virginia lawmakers further reduced the Business Franchise Tax from 0.55 to 0.2 percent.

Personal Income Tax

West Virginia's Personal Income Tax (PIT) is the largest single source of state tax revenue in West Virginia. It amounts to about 35% of total state general revenue fund in a given year. The personal income tax is imposed on West Virginia state taxable income from residents, nonresidents, estates, and trusts. Corporations, partnerships, certain trusts, and associations are exempt from the personal income tax. The state income tax is a progressive tax, which means that the tax rate rises with taxpayer's income level as shown in Figure 3. It has five income brackets with independent tax rates ranging from 3% (for incomes between $0 and $10,000) to 6.5% (for incomes over $60,000). West Virginia has the second highest minimum marginal rate (3%), after Pennsylvania's flat 3.07% rate, and the second highest top marginal rate (6.5%) for the personal income tax among its neighbors. While this, together with a high top marginal rate, makes West Virginia's personal income tax system appear more progressive than the majority of the neighboring states, its considerably high minimum marginal rate makes the tax system appear relatively more regressive than other states. Following the recommendations of the 2006 West Virginia Tax Modernization Project, state lawmakers implemented an indexed family tax credit designed to eliminate the state income tax on families with incomes below the federal poverty level.

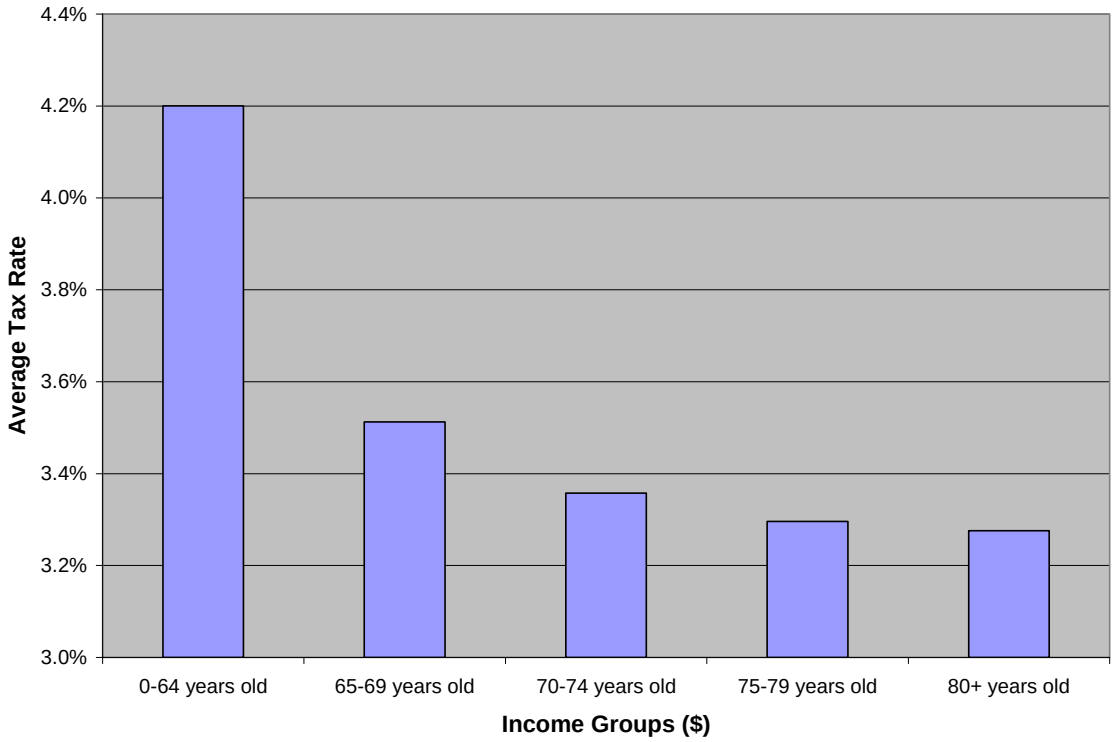
Figure 3: Economic Incidence of West Virginia Personal Income Tax, 1999-2004



Conventionally, we assume that the state personal income tax burden is borne entirely by its taxpayers, which makes the analysis of the economic incidence of state income taxes very straightforward. As the tax rate schedule implies and the tax incidence estimates in Figure 3 confirm, the personal income tax in West Virginia. The average effective tax rate graphed in Figure 3 begins with 0.3% for the lowest income group and ends with 5.4% for the highest income group.

Given the data availability on the age characteristics of the state income tax filers in 2003 and 2004, we are also able to analyze the incidence of the state income tax across five age groups (0-64, 65-69, 70-74, 75-79, and 80+ years old). First of all, the income levels of taxpayers differ significantly across different age groups. The income level of the 0 to 64 age group is significantly higher than the income of the older age groups. There is also a significant variation in incomes among older age groups. Tosun et al. (2006) report that West Virginians in the 55 to 64 year old group have a higher average income compared to those in 65 and older age groups. The difference in average incomes is particularly significant between the 55 to 64 and 85 years and older age groups. These differences in income levels have direct implications for the incidence of the state income tax. Figure 4 shows that the income tax incidence or tax burden declines sharply with age.

Figure 4: Average West Virginia Personal Income Tax Rate by Age Group, 2003-04



This occurs not only due to the fact that incomes decline with age but also due to the changing composition of taxable income. While individuals in the 55 to 64 age group still

rely heavily on their taxable work related income from wages and salaries that amounts to 75% of their average income, individuals 65 years old and over rely heavily on social security and private savings payments that amount to about 60% of their income.

The economic incidence of the Personal Income Tax may also vary geographically. An earlier study on the incidence of West Virginia's income taxes by Tosun and Yakovlev (2004) finds that the distribution of total income taxes across West Virginia counties is very skewed towards the biggest ten counties which are responsible for 57% of total personal income tax collections, while the remaining 45 West Virginia counties contribute 43% to total personal income tax collections. A sizeable amount of revenue is collected from taxpayers in Kanawha County, which makes 16% of the state's total personal income tax collections. This share, according to Tosun and Yakovlev (2004), is considerably greater than the revenues collected from the next largest revenue locations, Cabell and Wood counties, which together are responsible for a total of only 12% of total personal income tax collections. Recent studies by Tosun (2003), Tosun and Skidmore (2003), Walsh and Jones (1988) indicate that West Virginia counties at the state borders have significantly different tax revenue patterns compared to interior counties due to greater economic activity in border counties that are close to major population centers in neighboring states. Tosun and Yakovlev (2004) find that the average income tax rates in interior counties are slightly higher than those in border counties for the higher income groups, which can make the state income tax incidence to appear slightly more progressive for the interior counties.

Sales and Excise Taxes

Despite the progressive nature of the personal income tax system in West Virginia, it cannot offset completely the regressive nature of the state consumption taxes. One of the main concerns about consumption taxes such as a sales tax, for example, is that they tend to be very regressive. In other words, lower income households pay a higher share of their incomes in sales taxes compared to higher income households because lower income households spend higher share of their budgets on food and other taxable items. Tosun and Yakovlev (2006), among others, find that the sales tax paid as a share of income (i.e. the average tax rate) decreases substantially as the income level rises, thereby confirming the regressive nature of consumption taxes. Similarly, Pechman (1986) finds that state and local consumer sales taxation is one of the main reasons why state and local tax systems are more regressive than the federal tax system.

Despite the regressive nature of consumption taxes, their true tax incidence or burden is likely to be overstated in this report for a number of reasons. First of all, as individual incomes grow and people move into higher income brackets during their lifetime, the regressivity of consumption taxes is going to diminish.[4] Second of all, public assistance

[4] Studies by Fullerton and Rogers (1993) and Metcalf (1993) challenge the regressive nature of consumption taxes by pointing out that the incidence results differ when lifetime income measure is used instead of an annual income measure. These researchers argue that personal income changes dramatically over time and through the life-cycle and thus the lifetime income measure gives a more accurate picture of

programs and transfer payments programs already provide significant tax relief to lower income households and we try to adjust for that in our estimates by using the Consumer Expenditure Survey (CES) data on public assistance payments.[5] For instance, the incidence of the sales tax on food appears to be less regressive when food stamps and WIC vouchers are taken into account as shown by Tosun and Yakovlev (2006). The regressivity of the sales tax estimates in the report decreased significantly once the food stamps and other public assistance payments were taken into account. Thirdly, the Consumer Expenditure Survey cites a survey bias that shows consumption figures for the lowest income group to be disproportionately high for its level of income leading to overly-regressive tax incidence estimates. According to the Bureau of Labor Statistics (BLS), this could be due to respondents' income underreporting, which leads to unusually high expenditure levels particularly in the case of lower income consumers.[6] Another reason for why West Virginia taxes may appear to be overly regressive is because the average tax payer's income in the lowest income group is below the national average, while the average taxpayer's income in the highest income group is above the national average on which the consumption patterns are based. For these reasons, the regressivity of the commodity taxes considered in this report is likely to be overstated.

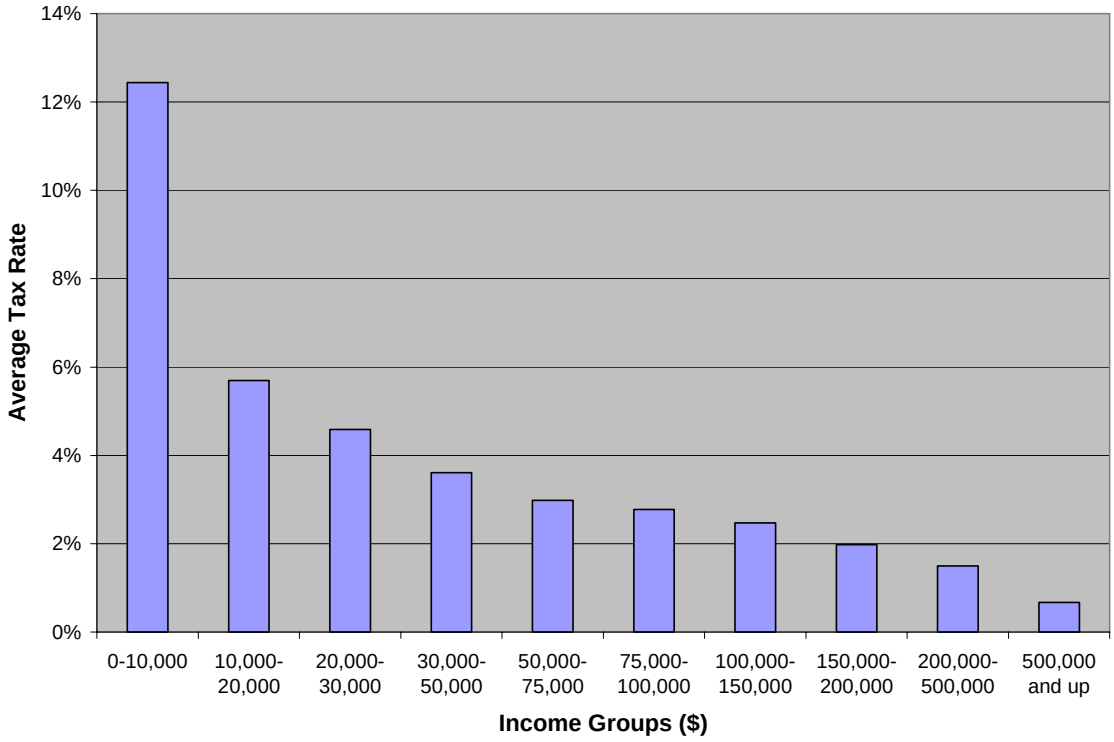
Considering this inherent regressivity bias, the incidence of the West Virginia Sales and Use Taxes is likely to be less regressive than might be inferred from the average tax rates shown in Figure 5. According to our estimates, consumers with incomes below $10,000 pay about 19 times more in sales taxes as a share of their income compared to consumers with incomes over $500,000 because low income consumers spend a higher share of their budgets on items that are subject to the sales tax. In other words, because consumption of food and other commodities constitute a large share of income for low income earners, sales and excise taxes tend to be very regressive in nature.

Figure 5: Economic Incidence of West Virginia Consumer Sales and Use Taxes, 1999-2004

the incidence of taxes. They show that state and local sales taxes may not be as regressive when lifetime income measure is used.

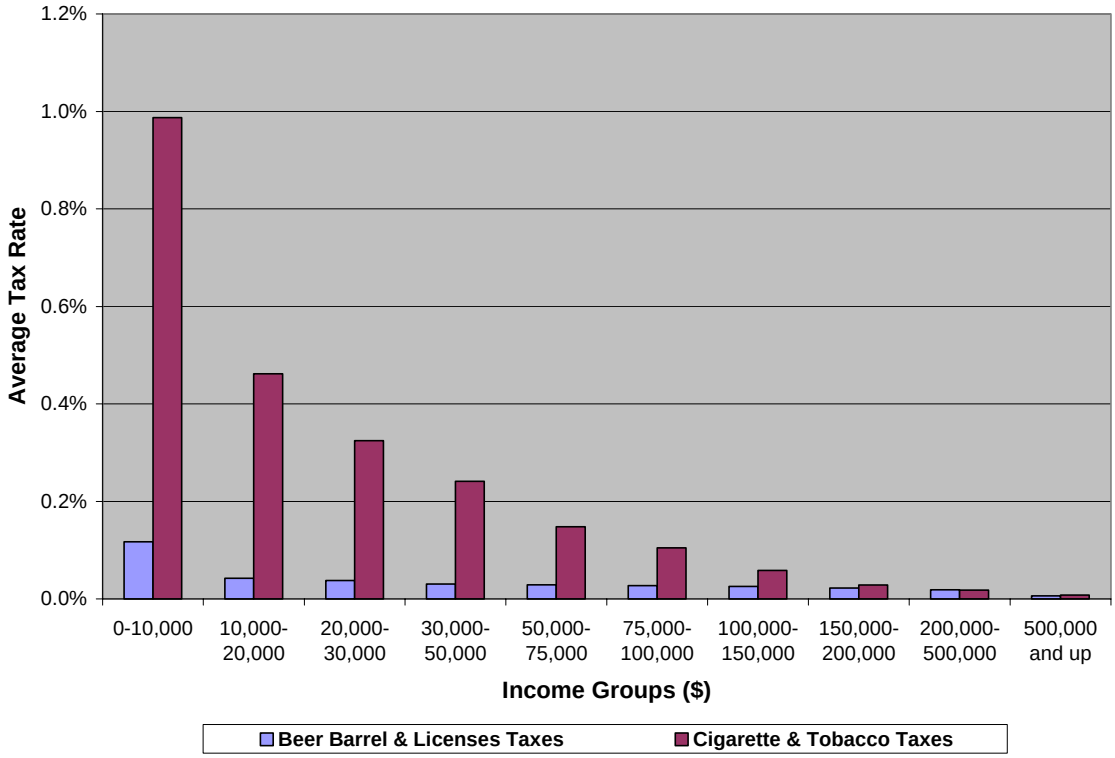
[5] There are certain requirements to be eligible for food stamps. For example, the gross monthly income limit for a household of four to get food stamps is $2,097 (monthly income limit net of allowable deductions is $1,613). More information on the federal food stamps program can be found in the U.S. Department of Agriculture Food and Nutrition Service web site at http://www.fns.usda.gov/fsp/.

[6] The BLS suspects that some consumers in the lower income classes underreport their income, while having expenditure levels that are more typical of upper income consumer units. This would increase the average expenditure levels of the lower income class relative to their incomes.



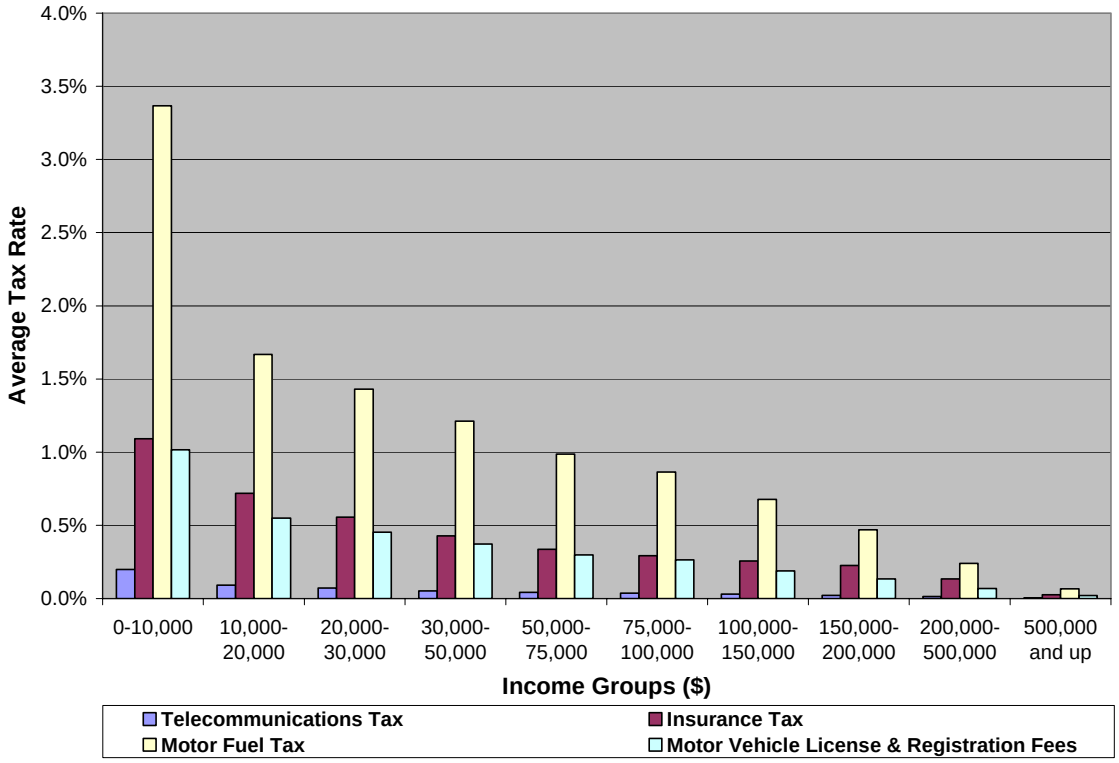
In addition to the sales tax, West Virginia collects other consumption taxes that are also very regressive in nature. As Figure 6 and 7 indicate, taxes on beer, wine, liquor, tobacco, gasoline, and motor vehicles also appear to be very regressive.

Figure 6: Economic Incidence of West Virginia Alcohol and Tobacco Taxes, 1999-2004



Comparing the average tax rates for the bottom and top income groups in Table 1 reveals that taxes on beer, wine, and liquor accompanied by taxes on gasoline, cigarette, and tobacco consumption are the most regressive taxes in the state tax system. An earlier tax incidence study by Tosun and Yakovlev (2003) confirms that an excise tax on gasoline is a very regressive tax.

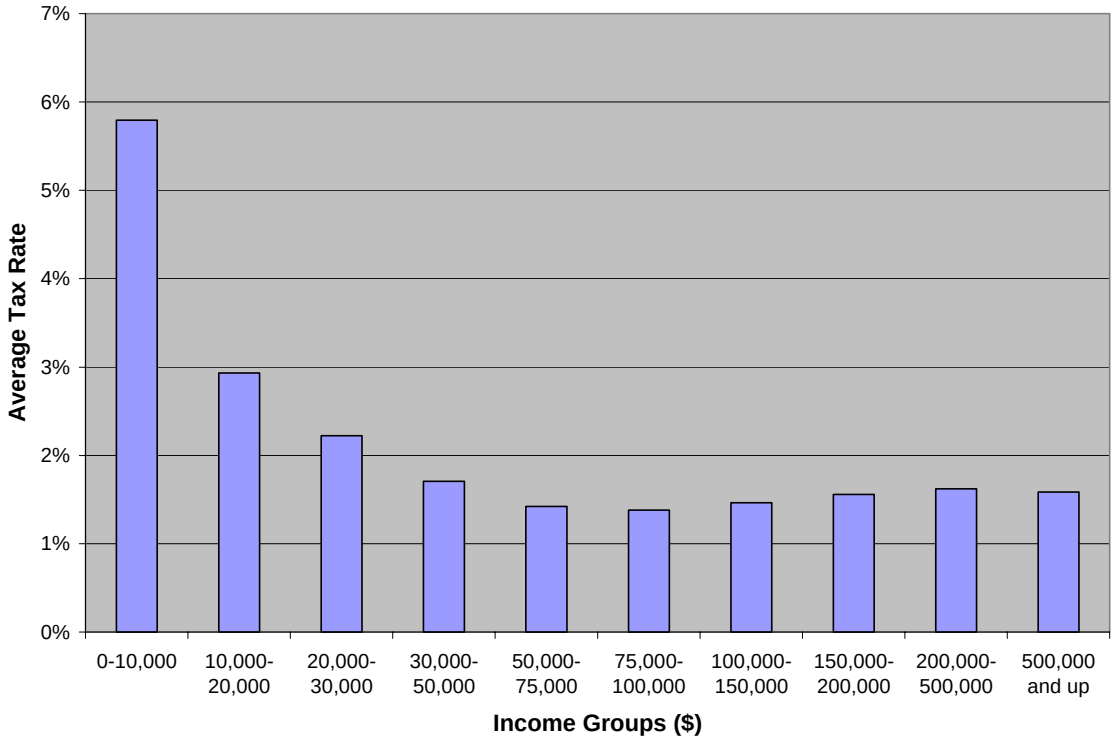
Figure 7: Economic Incidence of Selected West Virginia Taxes, 1999-2004



Business Taxes

Compared to the burden of consumption taxes that is borne consumers, the distribution of the business tax burdens is more complex. While some taxes may appear to be levied on and paid by businesses, they are likely to be shifted directly to consumers (like the sales tax) at the time of sale in terms of higher product prices. Similarly, West Virginia's Telecommunications and Insurance Premium Taxes are likely to be completely shifted to consumers in terms of higher prices. According to this scenario, West Virginia's Telecommunications and Insurance Premium Taxes would be borne by consumers and appear to be moderately regressive as shown in Figure 7. Economists may disagree on the exact distribution of the business tax burdens, however. The exact distribution of the business tax burden depends on the relative elasticity of demand and supply of labor, capital, and final goods. Some economists argue that business taxes can be borne partly or entirely by capital owners.

Figure 8: Economic Incidence of West Virginia Business Taxes, 1999-2004



Note: Four major WV business taxes are combined together in this graph: CNIT, BFT, Severance, and B&O. In this scenario, 50% of the CNIT/BFT is assumed to be borne by capital owners and the other 50% by consumers. Moreover, 50% of Severance and B&O taxes are assumed to be borne by West Virginia consumers and the other 50% are exported to consumers in other states through higher prices.

Given the lack of consensus among economists about the short run incidence of business taxes, we estimate several scenarios for the incidence of the Corporate Net Income (CNIT), Business Franchise Tax (BFT), Severance Tax, and Business and Occupation (B&O) Tax using different tax shifting and exporting assumptions.[7] For example, assuming that 100% of the CNIT/BFT burden is shifted to capital owners, while 50% of the Severance and B&O tax burden is exported results in a u-shaped tax incidence curve suggesting that the tax burden, at first, falls and, then, rises with income. This assumption leads to a somewhat progressive distribution of business tax burdens. Conversely, assuming that 100% of the CNIT/BFT burden is shifted to consumers leads to a rather regressive distribution of business tax burdens. The "middle ground" assumption that 50% of the CNIT/BFT burden is shifted to consumers and the other 50% to capital owners makes the distribution of business tax burdens, at first, more regressive and, then, weakly progressive as taxpayers' incomes rise (Figure 8). While the three tax shifting assumptions for the business taxes differ significantly in their regressivity, they do not alter substantially the overall regressivity of the fourteen taxes analyzed in this report. Given the lack of consensus among economists on the exact distribution of the business

[7] CNIT is a tax on corporate profits, BFT is essentially a tax on net business equity, Severance Tax is a tax on natural resource production (extraction), and B&O Tax is primarily a municipal tax on energy-related (utility) industries.

tax burden, we adopt the moderate or "middle ground" scenario and show its tax incidence estimates in Figure 8.

Real Estate Property Tax

Finally, we analyze the economic incidence of the West Virginia Real Estate Property Tax. Economists have been debating about the incidence of the property tax for at least thirty years. Zodrow (2001) writes that professional opinion on the property tax incidence is generally divided between the traditional view, benefit tax view and the capital tax view. The traditional view treats the property tax as a market price for public services consumed and paid for by taxpayers.[8] The benefit view is an extension of the renowned Tiebout (1956) model of local government where the property tax is effectively a user charge that is paid in exchange for the benefits of local public service. Thus, it is a non-distortionary tax.[9] The capital tax view identifies the property tax as a tax on the use of capital, which makes it a progressive tax since capital ownership increases with income.[10] There is also the "new capital tax" view of the property tax that holds a less extreme view of the property tax than the original capital tax view. Hence, the economic incidence of the property tax can be very complex and confusing.[11]

We provide three different estimates of the property tax burdens for West Virginia according to the three scenarios that correspond to the traditional view, capital tax view, and the new capital tax view discussed previously. The traditional view results in a regressive distribution of the property tax burden across income groups as shown in Figure 9.

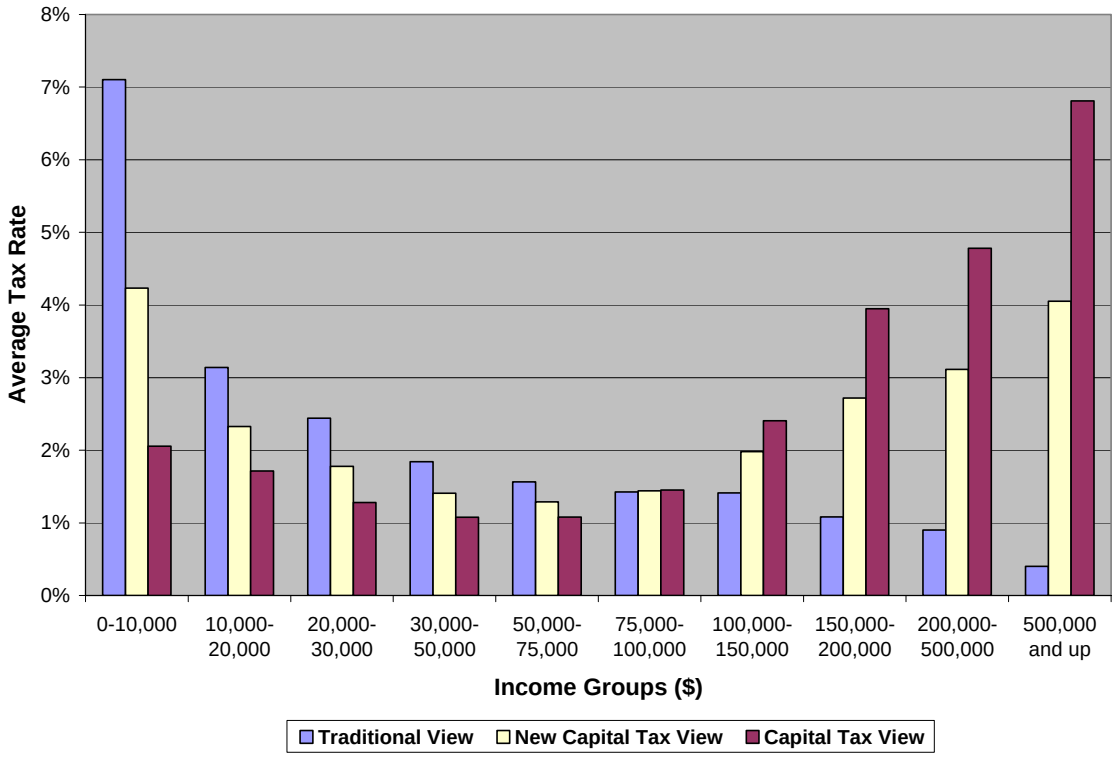
Figure 9: Economic Incidence of West Virginia State Property Tax, 1999-2004

[8] According to the benefit tax view, the property tax is efficient but regressive because the income share spent on housing falls as income rises. This view of the property tax is analogous to a sales or an excise tax, which are also regressive.

[9] The evidence on the capitalization of local property taxes and public services into house prices has been interpreted by Oates (1969), Hamilton (1976), and Fischel (2001) as being consistent with the benefit view. However, Zodrow (2001) as well as Kotlikoff and Summers (1987) have argued that the same evidence can be consistent with the capital tax view.

[10] And as shown by the differential tax incidence analysis pioneered by Harberger (1962), capital taxation is inefficient. According to Zodrow and Mieszkowski (1986), the capital tax view divides the incidence of the property tax into two components: (1) the national component of the property tax is essentially a profits tax borne by all capital owners, including homeowners, businesses, and investors, (2) while the local component of the property tax is essentially an excise tax that is borne locally through changes in land rents, wages, or housing prices. Thus, Zodrow and Mieszkowski (1986) suggest that the burden of local rather than national property taxes tends to be borne primarily by local residents.

[11] Another complication in our property tax incidence analysis is the lack of data on the patterns of property ownership and property tax payments by income groups. We resort to using national property consumption patterns obtained from the 2003 CES to approximate the property ownership and renting patterns of West Virginia taxpayers.



Despite its prevalence among the general public, this traditional (regressive) view of the property tax has long been challenged by economists, however. Youngman (2002), for instance, points out the apparent divergence between public and expert perceptions of the property tax. She writes that while the property tax is widely accepted as a regressive one by the general public, it is not accepted to be so at all by many academic experts. Contrary to the traditional view, Aaron (1975) argues that the property tax should be recognized as a tax on capital, which implies a progressive tax burden because the ownership of capital is progressively distributed with respect to income. Thus, in Figure 9, we also show the distribution of the property tax burden that is allocated in proportion to individual capital earnings. Not surprisingly, these two opposing views on the incidence of the property tax yield two very different distributions of the property tax burden—one regressive (traditional view) and one progressive (capital tax view).

We also estimate a "middle ground" scenario that reflects the new capital tax view, which is less extreme than the original capital tax view and is probably the most realistic one among the three scenarios considered here.[12] We agree with Aaron (1975) that the

[12] Goodman (2005) finds that apartment residents pay 39 percent more in property taxes than homeowners of the same income level. Although these numbers suggest a higher and more regressive statutory tax burden on renters than homeowners, the actual tax burden or incidence may be shared by landlords and their tenants. A study by Carroll and Yinger (1994) reveals that landlords in the Boston area bear about 85% of the property tax burden, on average. This finding suggests that much of the tax on residential property is probably borne by capital owners, at least in the short run. This finding is consistent with the "capital tax" view or the "new capital tax" view. However, Carroll and Yinger (1994) point out that this result may not necessarily extend to commercial or industrial properties.

widespread property exemptions for elderly and low-income persons, zoning, and other regulations may actually erode the conceptually progressive nature of the property tax suggested by the capital tax view, which means that the actual distribution of the property tax burden is likely to be somewhere between the traditional and capital tax views. To obtain this more balanced scenario, we assume that the tax burden on residential property is distributed according to the traditional view and the tax burden on commercial property is distributed according to the capital tax view. As shown in Figure 9, this more balanced scenario yields, at first, a slightly regressive tax burden that turns into a moderately progressive tax burden for individuals with incomes $75,000 and above. Though overall, the new capital tax view scenario paints a slightly progressive nature of the real estate property tax in West Virginia. Moreover, even this slightly progressive estimate of the property tax burden is likely to understate it because we do not examine how the property tax burden would look like in the long run when individuals' lifetime or permanent incomes should be used for incidence analysis.

Conclusion

Our economic tax incidence estimates for the majority of West Virginia taxes indicate that the state tax system is regressive and its regressivity has increased during the 1999-2004 period. However, the overall regressivity of West Virginia taxes is rather mild, especially considering that the available data is likely to bias our estimates towards more regressivity. Recent changes in business, personal income, and consumption taxes introduced by West Virginia governor and lawmakers in 2006 and 2007 made the state tax system less regressive. The overall incidence of the fourteen West Virginia taxes considered in this report hides the diversity in the distribution of the tax burdens across different income groups. This is why a detailed analysis of specific West Virginia taxes is also present in this report. It reveals that the progressive nature of West Virginia's Personal Income Tax system cancels out much of the regressivity stemming from the sales, alcohol, gasoline, tobacco, insurance, telecommunications, and other taxes collected in this state.

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Assumptions and Methodology

In order to derive our tax incidence estimates, we rely mainly on the micro-unit datasets of all West Virginia personal income tax returns available for 1999-2004, courtesy of the West Virginia State Tax Department, and the 2003 Consumer Expenditure Survey (CES). We use the 2003 Consumer Expenditure Survey provided by the Bureau of Labor Statistics (BLS) to allocate representative taxpayers' consumption patterns for a wide variety of taxable goods and services by the income groups adopted from the 1999, 2000, and 2001 Statistics of Income (SOI) figures for West Virginia that are provided by the Internal Revenue Service (IRS).[13] As a final step, we allocate taxes across the SOI income groups according to the CES consumption patterns and compute average tax rates to determine the tax burdens. The average tax rate for each income group is calculated by dividing the total attributed tax by the total federal adjusted gross income of West Virginia taxpayers in that income group.[14] The average tax rates calculated in this report represent a static tax burden or tax incidence analysis that does not include the economic feedback resulting from the behavioral effects of taxation. To account for individual consumption and income patterns more accurately, we augment our income calculation with food stamps and other public assistance or transfer payments that mostly go towards low income households.

One of the complexities arising in incidence analysis has to do with properly determining the allocation of tax burdens among capital, labor, and prices. Congressional Budget Office (CBO), for instance, and most economists argue that commodity taxes such as sales and excise taxes, for example, are fully shifted to consumers in terms of higher prices. Similarly, personal income taxes and property taxes are assumed to be borne by individual income earners and property owners (except when property owners can shift some of the property tax burden onto renters). We adopt the same assumptions in this report. However, economists tend to disagree on the exact distribution of the tax on business capital between capital owners (in terms of lower returns or profits), workers (in terms of lower wages, and consumers (in terms of higher prices). Some economists argue that in the long term capital can escape taxation entirely due to its ability to move across state and country borders in search of a higher after-tax return. In this case, workers and consumers end up bearing the full burden of business taxes.[15] Others believe that capital bears at least some portion of capital taxation. CBO, for instance, assumes that corporate

[13] See the related IRS web site at http://www.irs.gov/pub/irs-soi/00in49wv.xls.

[14] The Bureau of Business and Economic Research produced these tax incidence estimates using the BBER's tax calculator (PITCALC), which was developed by the West Virginia Public Finance Program staff. PITCALC reads the state personal income tax return data to calculate directly the personal income tax liabilities of West Virginia residents.

[15] Given the lack of consensus on the shifting of business tax burdens in the short term, we consider several tax shifting scenarios similar to Pechman (1986). In one scenario, we assume that 100% of the Corporate Net Income Tax (CNIT) and Business Franchise Tax (BFT) burden is shifted to capital owners in terms of lower dividends and capital gains, which are allocated according to the IRS' 2001 Statistics of Income data. In another scenario, we assume that 50% of the CNIT and BFT burden is shifted to capital owners and the other 50% to consumers. In another scenario, we assume that 100% of the CNIT and BFT burden is fully shifted to consumers in terms of higher prices.

income taxes are borne by capital owners in proportion to their income from interest, dividends, rents, and capital gains.

Another complex issue to consider in tax incidence analysis is tax exporting. Tax exporting is defined as "the process by which a tax levied by one jurisdiction is shifted (exported) to a taxpayer of another jurisdiction" (Phares, 1999). In other words, tax exporting is about the geographical incidence of state and local taxes. Thus, tax exporting can have potentially significant implications for the accuracy of tax incidence estimates. If significant cross-border shopping occurs due to sizeable sales or gasoline tax differentials between states, then some of the tax burden will be exported to the residents of the state with the higher tax rates. For instance, sixty four percent of the gasoline tax is borne by Minnesota's consumers, while thirty six percent of the tax burden is exported to the gasoline consumers from other states (Minnesota Department of Revenue, 2003). In this report, we argue that tax exporting is likely to occur only for Severance and Business and Occupation (B&O) Taxes that affect utilities prices, but not for the sales and gasoline taxes.[16] Thus, our estimates account for possible tax exporting only in the case of Severance and Business and Occupation Taxes. Based on the information obtained from the West Virginia State Tax Department, West Virginia appears to be a net exporter of electric power responsible for exporting to other states roughly 65% to 70% of total electric power generation. Since electric power is by far the major component of the total B&O tax revenue, we make a rough assumption that about 50% of Severance and B&O tax burden is likely to be exported in terms of higher prices to consumers outside of West Virginia.

[16] As recent study by Tosun and Skidmore (2006) showed, the reintroduction of the 6 percent sales tax on food in 1989 had a significant negative sales impact in West Virginia border counties due to significant cross-border shopping taking place in the neighboring states. As for gasoline taxes, Tosun and Yakovlev (2003) have not observed a significant difference in per capita gasoline sales in West Virginia border counties. More information, including the results of the regression analysis, on the cross-border effects of gasoline sales is available from the authors upon request.